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None but the brave

The story of the men of the wartime weather ships

By B. J. Booth

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None but the brave
The story of the men of the wartime weather ships

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Part 1: September 1939 – January 1941

As a result of the imposition of radio silence on shipping following the declaration of war in September 1939, British forecasters were deprived of weather observations from the North Atlantic. Vital though these were for military operations, when the Meteorological Office proposed that Royal Navy ships be used to fill the void, the resource-strapped Admiralty was unable to offer any assistance.

Nearly a year passed before the Admiralty chartered two steamers for deployment as weather reporters. Officially known as Panthers 1 and 2 they were the *SS Arakaka* and *SS Toronto City* (Figure 1). Their crews signed articles for six months, and the terms of the charter required the ships' owners to accept responsibility for every aspect of the operation bar one. The only exception was the meteorological work which would be conducted by two meteorologists posted to each ship – one from the Meteorological Office and one from the Admiralty.

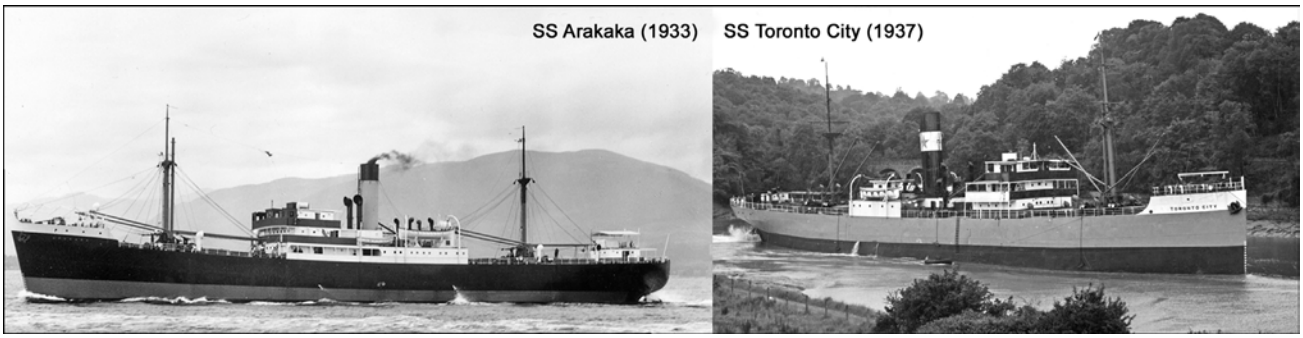


Figure 1. The two Panthers, the SS Arakaka and SS Toronto City; the second ship was torpedoed almost exactly four years to the day after the photograph was taken (4 July 1937).

Although the operation was designed solely for military purposes, the Admiralty decreed that as the Panthers were merchant ships they would sail under the Red Ensign – their only protection being light guns if attacked by a surfaced U-boat. In such an event flight was not an option; with a top speed of about 10-12 knots they could easily be overhauled by submarines capable of nearly twice that speed.

The operation required the ships to spend two weeks patrolling an area in mid-Atlantic, one ship being on station, whilst the other was in port.

Flt Lt Sidney Portass and Mr Stanley Proud were persuaded to volunteer as the Meteorological Office representatives – the main qualification apparently being that they were not prone to sea-sickness. No inducement appears to have been offered, other than a promise that a voyage would last three weeks followed by a week in port. This was crucially important for Proud (Figure 2a), a married man with a year-old daughter; Portass (Figure 2b) had no known attachments and had served in France after being mobilised at the beginning of the war.

The meteorological offices on both ships were located in what had been the passengers' lounge, with external instruments being placed in suitably exposed positions (Figure 3).

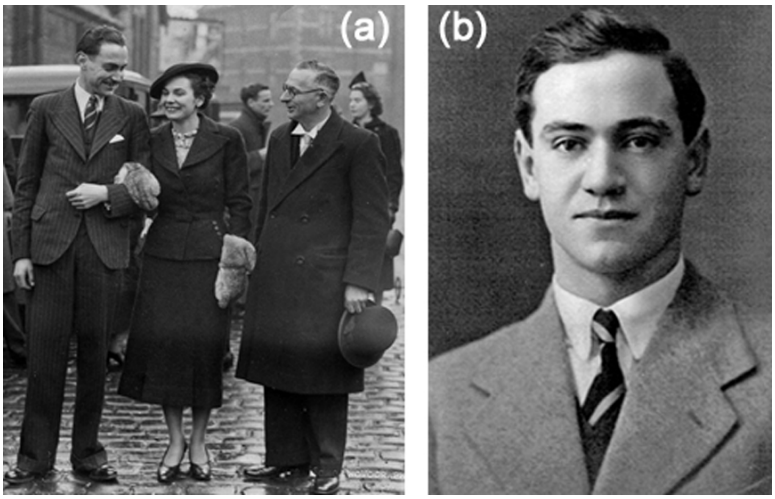


Figure 2. (a) Stanley Proud with his wife, Nora, on their wedding day in December 1937. (© Elizabeth Portass) (b) Sidney Leslie Portass. (© Lesley Millard).

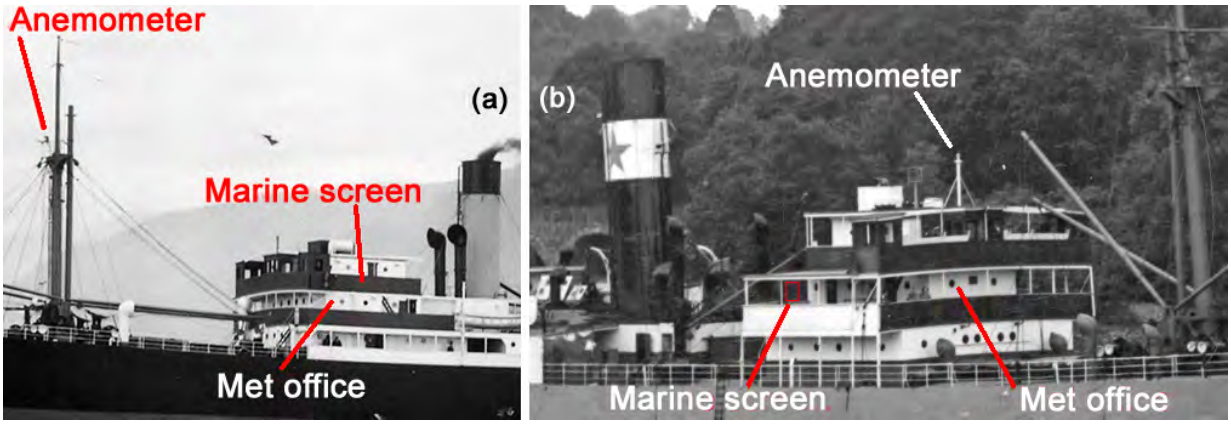


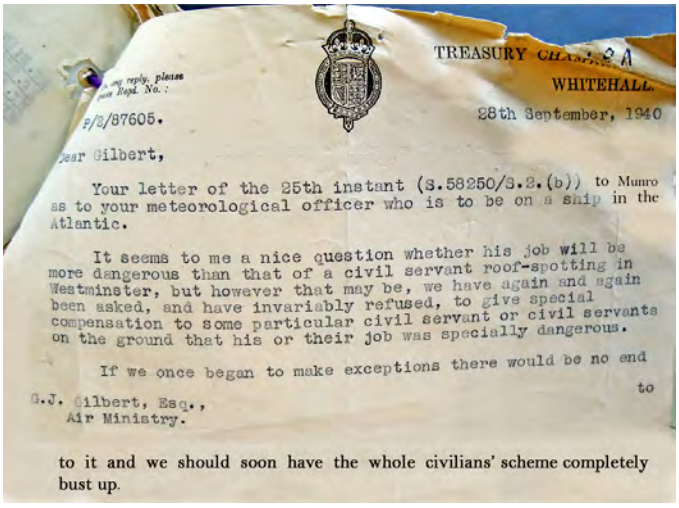
Figure 3. On both ships the meteorological office was located in what had been the passenger lounge immediately below the bridge. The marine screens were placed in position on the windward side of the ship about 15 minutes before an observation was due; on the Arakaka (a) this was on the flying bridge above the meteorological office, but outside the office on the Toronto City (b).

On 16 September the *Arakaka*, under the command of Captain Walker (Figure 4), sailed from Liverpool with convoy OB215. It took six days to reach the patrol area, and the first observations were transmitted on the 22nd.

Figure 4. The presentation of Captain William Walker to King George VI at Liverpool; believed to be April 1940. © Frances Holmes

At that moment the Meteorological Office belatedly remembered that Proud, who was due to sail from Bristol at the end of the month, was a civilian. As such he would only be entitled to minimal compensation for any injury. In the event of his death, his wife would receive a small widow's pension, instead of the £200 per annum due to a serviceman with the same seniority. A request to the Treasury that Proud be granted the same privileges as his service colleagues was sent on the 25th, but met with an immediate refusal. The Treasury's reply (Figure 5), received on the 29th, two days before the *Toronto City* was due to sail, reflects the naivety of all those involved in the operation:

It seems to me a nice question whether his job will be more dangerous than that of a civil servant roof-spotting in Westminster, but however that may be, we have again and again been asked, and have invariably refused, to give special compensation to some particular civil servant or civil servants on the ground that his or her job was especially dangerous. If we once begin to make exceptions there would be no end to it and we should soon have the whole civilians' scheme completely bust up!



TREASURY CHAMBERS,
WHITEHALL.
28th September, 1940

P/2/87605.

Dear Gilbert,

Your letter of the 25th instant (S.58250/S.8.(b)) to Munro as to your meteorological officer who is to be on a ship in the Atlantic.

It seems to me a nice question whether his job will be more dangerous than that of a civil servant roof-spotting in Westminster, but however that may be, we have again and again been asked, and have invariably refused, to give special compensation to some particular civil servant or civil servants on the ground that his or their job was specially dangerous.

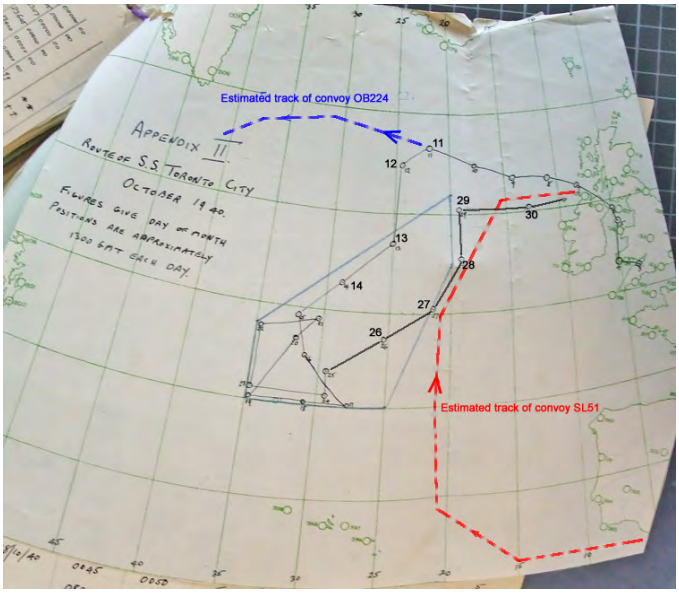
If we once began to make exceptions there would be no end to it and we should soon have the whole civilians' scheme completely bust up.

to

G.J. Gilbert, Esq.,
Air Ministry.

Figure 5. The Treasury's reply to the Meteorological Office request that Proud be given the same benefits as his RAF/RN colleagues in the event of injury or death on active service.

Proud was immediately commissioned as an acting Flight Lieutenant, and as such he sailed from Bristol during the early hours of the 3rd October – without uniform, but at least eligible for benefits he would otherwise have been denied.



The homeward leg of *Toronto City's* first voyage should have been made in the company of convoy SL51 heading north from Gibraltar (Figure 6), but the rendezvous was missed because of rough weather, poor visibility and heavy swell. Consequently the ship returned to Bristol unescorted, arriving safely on 4th November.

Figure 6. The SS Toronto City joined convoy OB224 off Liverpool on 5 October and left it for the patrol area on the 11th. The probable track taken by inbound convoy SL51 is shown in red. The area of greatest risk from U-boats was to the west and northwest of Ireland.

The *Arakaka* had previously docked in Liverpool on the 17th October, and together both ships had accomplished the basic aim of the operation – the provision of a near continuous series of weather reports from mid-Atlantic. This apart there was little reason for congratulation. The sailing schedule, devised by the Met Office's Marine Branch, was based on the concept that it would take just three days to reach the patrol area, but no account appears to have been taken of war-time restrictions, and the reality was the journey took between 6 and 10 days – an error that threw the schedule into complete disarray.

Difficulties in raising Portishead Radio meant that transmissions of weather reports were sometimes considerably delayed - on one occasion it took nearly two hours to elicit a response – and this at a time when radio silence was the priority.

Instruments, too, caused concern, especially the theodolites provided by the Royal Navy to determine upper winds – the one issued to the *Arakaka*, for example, was rusted and unfit for purpose, whilst Proud was later moved to remark that -

The tripod appears to have been intended for use by meteorologists considerably shorter than the staff of the SS Toronto City.

Whilst these were real causes of concern the reality of the situation was that the motion of the ships was so bad that there were few opportunities to attempt ascents; the *Arakaka* in particular was prone to roll 45-60 degrees in even moderate winds and swell (Figure 7).

Figure 7. A computer simulation of a modern container ship rolling at 45 degrees.

No sooner had the *Arakaka* docked in Liverpool on 17th October than Portass was on the train to London for a meeting to discuss the first Panther voyage. During the meeting the following day, the Admiralty, without apparent reference to the Met Office, announced that future voyages were to be based at St John's, Newfoundland, with the proviso that the ships would return home after three months. At the same time, and again without prior warning or explanation, the two Admiralty forecasters were withdrawn from the ships. This left the Met Office with the difficult task of finding a replacement for the *Arakaka* which was due to sail in seven days.

In the event the replacement, Cpl Richard Wrighton (Figure 8), travelling from RAF Drem, just east of Edinburgh, managed to board the ship minutes before it cast off on the evening of the 25th October.

Figure 8. Corporal Richard Wrighton, RAFVR. (© Lesli Gallivan)

The *Arakaka*'s second voyage was, if anything, worse than the first. The ship, long overdue for dry-docking and maintenance, had to heave to three times for its engines to be repaired; the degaussing gear broke down causing a small fire: there were several leaks and it was later found these had allowed sea-water to contaminate part of the fresh water supply.

Meanwhile the *Toronto City* had been expected to leave for its second voyage on the 12th November, – except that on the 6th the Met Office's Marine Branch ordered structural changes for the installation of launching equipment for radio-sondes. This was actually forward thinking by the Met Office as it had no such instruments of its own, but it was anticipated these would be supplied by the Canadian Meteorological Service. Unfortunately the Marine Branch had overlooked the fact that the ship was actually under charter to the Admiralty, and had no authority to order any work – needless to say the Admiralty expressed its displeasure in the strongest terms. The Marine Branch had also believed the work would be completed in five days, but it wasn't and the ship's departure was delayed until 1st December – two weeks behind schedule.

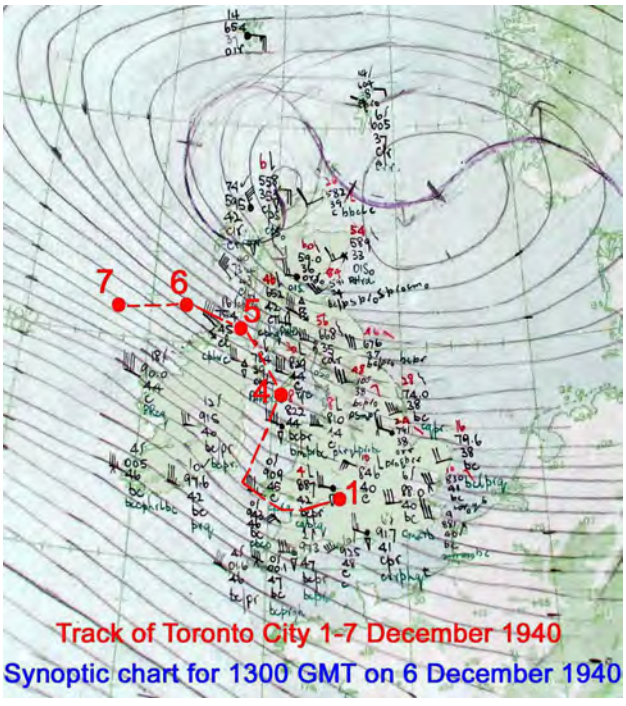
Two small positive outcomes of the delay were that Proud acquired a uniform (Figure 9) and the RAF replacement, Cpl Edwin Hedley-Smith, had plenty of time to take up his new post. A single man he was a Member of the Royal Meteorological Society.

Figure 9. Flt Lt Proud at Bristol, shortly before sailing on 1 December 1940. (© Elizabeth Proud)

Figure 10. Captain Edwin Garlick, circa 1928 (© Robert Trueman)

Commanded by Captain Edwin Garlick (Figure 10), the *Toronto City* joined convoy OB 254 in the Irish Sea on the 4th December. As the ships left the relative shelter of the Irish Sea Hedley-Smith must have wished he was back in the comfortable meteorological office at Horsham St Faith where he had previously worked. Winds increased rapidly to storm force, reaching 60 knots on the 6th (Figure 11) and conditions were so severe that many larger vessels abandoned the convoy to seek shelter.

The *Toronto City* left the convoy in mid-Atlantic for the patrol area. After two weeks on patrol the ship turned westwards towards Newfoundland, docking in the island's main harbour of St John's on 30th December, (Figure 12).



Amazingly, although senior Met Office managers had discussed acquiring radio-sonde equipment from Canada, no approach appears to have been made to the Canadian Meteorological Service, nor had any arrangements been put in place to replenish meteorological stores for the ships – or of providing funds for subsistence and pay!

Figure 11. The synoptic chart for 1300 GMT on 6 December 1940, with isobars at 2 mb intervals. (© *Meteorological Office)*

Believing the *Arakaka* to be on schedule and approaching the patrol area, Proud took it upon himself to visit the head of the Canadian Meteorological Service in Toronto, to seek help and advice in obtaining meteorological supplies – and especially hydrogen for pilot balloons as none was available in St John's.

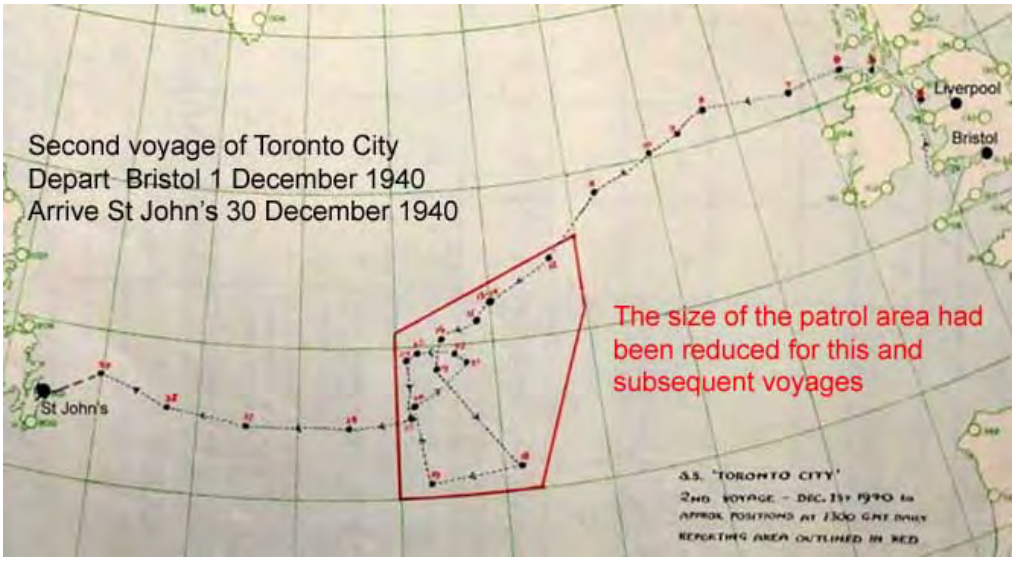
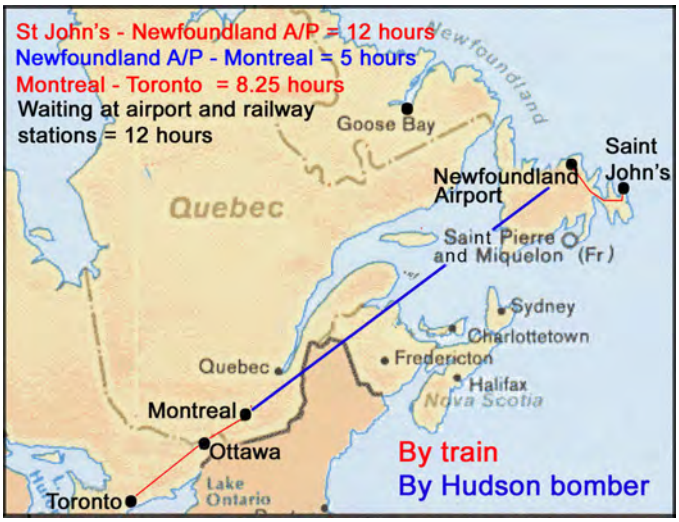


Figure 12. For the SS Toronto City's second voyage, the patrol area had been reduced in size and moved further west and reduced in size; observations were made for two weeks before the ship continued to St John's.



Proud's journey to Toronto proved unexpectedly difficult. There were no direct rail links to the Canadian mainland, and just two train departures a week from St John's to Newfoundland Airport, 230 miles to the north – a journey that took 12 hours. Fortunately a train left St John's at 6 pm the day after the Toronto City docked. 36 hours later, having hitched a ride on a westbound bomber to Montreal, and catching another train, Proud arrived in Toronto (Figure 13).

Figure 13. Proud's outward journey to Toronto took 36 hours – the return took eight days.

It all proved something of an adventure for Proud; obviously unused to the convenience and speed of flying, he told his wife:

One distance of 900 miles I covered in just over 5 hours.

And of the train

It is impossible to get a drink (to call a drink) on trains, but I believe it is usual to carry a quart of Scotch or gin, and obtain soda or ginger on board. At all events I saw the New Year in on the train in company with a medical student who had so provided for the occasion.

In Toronto the head of the Canadian Meteorological Service, Mr Patterson, could not have been more helpful and instructed the meteorological office at Newfoundland Airport to provide everything the ships needed. Although Canada had no radio-sonde equipment at the time, sets were expected in the near future, and Proud was promised priority would be given to making two available for the ships.

The return to St John took much longer than the outward journey, taking eight days before he eventually alighted from the train at St John's at 3.30 in the morning of the 14th January. In fairness matters had not been helped by strong winds and heavy snow which had closed the Airport for four days.

There still being no sign of the *Arakaka* the *Toronto City* sailed for its third voyage the following day.

Extensive repairs had delayed the *Arakaka'*s departure from Liverpool for several weeks, and she did not leave port until the 20th January. Sailing in convoy (Figure 14a) via a northern route, the ship eventually reached St John's on the 3rd February (Figure 14b).

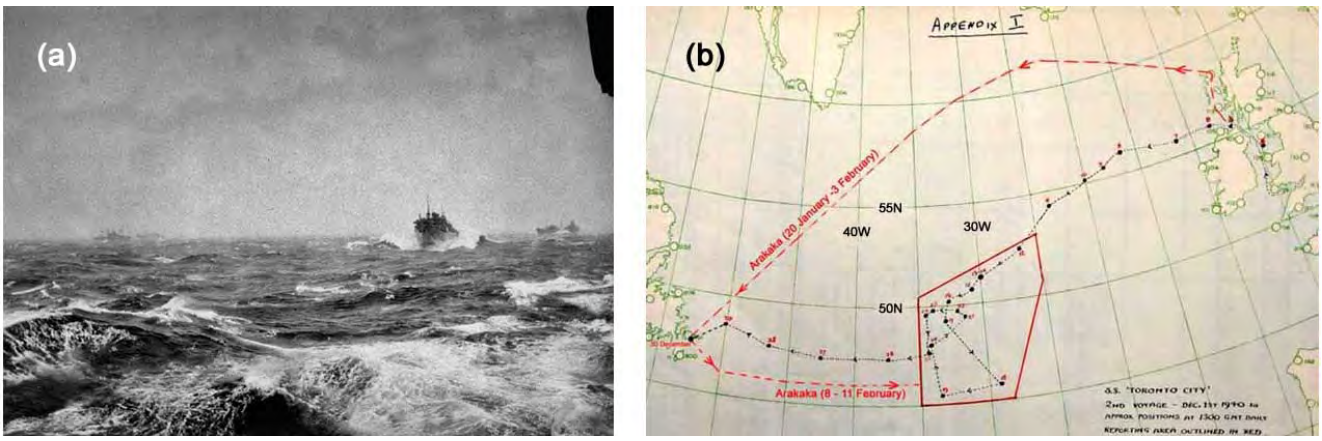


Figure 14. (a) A North Atlantic convoy in WW2 and (b) the north track followed by the SS Arakaka from Liverpool to St John's, compared with the earlier track of the SS Toronto City.

Part 2: February – July 1941

Watches

0300-1000 GMT ..... 7 hours
1000-1500 GMT ..... 5 hours
1500-2000 GMT ..... 5 hours
2000-0300 GMT .....7 hours

Transmissions scheduled for approximately (but times varied by day and ship)

0130 GMT includes
2200 and 0100 GMT observations

0730 GMT includes
0400 and 0700 GMT observations

1330 GMT includes
1000 and 1300 GMT observations

1830 GMT includes
1600 and 1800 GMT observations

With the two Panthers properly deployed a routine was quickly established, with both ships spending about 8 days in port and 26 days at sea. Transmission of observations started 12 hours after leaving port and continued until 12 hours before docking.

For the meteorological work a four watch system was adopted (Figure 15) – 0300-1000 GMT (7 hours), 1000-1500 (5), 1500-2000 (5) and 2000-0300 (7) – a total of 84 hours a week for four weeks, a figure which did not include additional tasks undertaken during the 'rest' periods.

Figure 15. (a) The times spent on duty; every seventh day the afternoon watch (1500-2000 GMT) was divided into two to enable a change to take place. Local time in the patrol area was about GMT-2 hours. (b) Transmissions of weather reports were made according to a prearranged schedule.

Weather reports were sent to Portishead Radio four times daily, at variable times after the 0100, 0700, 1300 and 1800 GMT observations (Figure 15). Each message consisted of the current observation and the one made 3 hours previously. From start to finish it took some 40 minutes to complete a report for transmission, much of the time being taken up with enciphering the reports using a subtraction code, the index figures being changed with every report (Figure 16). The code, known as the NAPA code was unique to the Panthers and changed every day, consequently it was

literally unbreakable. The encrypted message was then further encrypted into the Merchant Navy Code.

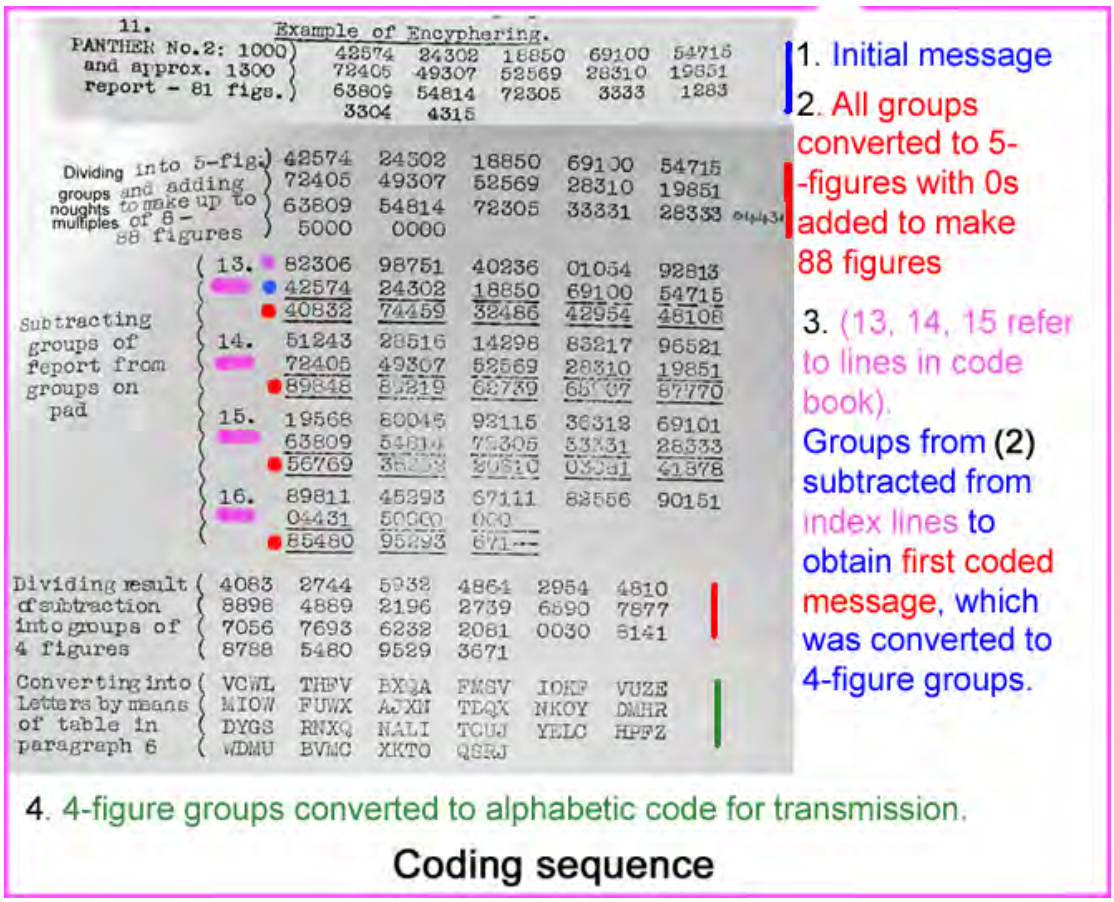


Figure 16. The sequence used to complete a coded weather report. The initial message (blue marker) is a combined report for 1000 and 1300 GMT from the SS Toronto City, and consists of a series of, mostly, 5-figure groups. Through a series of subtractions from index lines in a code book, this was converted into 4-figure groups which, in turn, were converted into letters using a predetermined table.

Thus in this sequence the first five groups 42574 24502 18850 69100 54715 become VCWL THFV BXQA FMSV IOKF VUZE.

Copies of the code books were given limited distribution to the Canadian authorities, *but with the strict proviso that neither the ship reports, nor their existence, be made known to the United States Weather Bureau.* (The United States was a neutral country at the time, and as such was denied secret information that could have compromised its neutrality or could have been passed to the enemy accidentally.)

To ensure the ships were in suitable areas to catch the main meteorological developments, Home Fleet Synoptic and Halifax Atlantic Fleet Synoptic broadcasts were used by the ships to construct weather charts three or four times daily. Irregular observations from neutral ships also proved useful in updating the charts.

It is perhaps worth noting that the German naval code breaking organisation, Beobachtungsdienst, or B-dienst, had been reading the British Naval Cypher used for these broadcasts since before the war. As abbreviated Panther observations were included in the broadcasts there is a possibility that German meteorologists were benefiting from them, although not in real-time.

The Merchant Navy Code had similarly been broken, so any non-meteorological messages such as position reports or time of arrival in port were also being read.

On the *Arakaka,* Portass, with the assistance of two of the ship's officers, eventually found that by using a combination of sextant and theodolite readings, he could obtain upper winds to an average height of 10000 ft – and he once reached 34000 ft. On the *Toronto City* attempts were far less successful – the ship's movement making it very difficult to follow a pilot balloon with just the theodolite.

Early trials of the radio-sonde launching gear proved generally satisfactory provided three men were available to assist with the launches and the wind was relatively light. The main cause of concern was the fact that even the few balloons used for the trial required far more hydrogen than Newfoundland Airport could provide so, largely for this reason, the trials were discontinued.

The main danger to the ships was not U-boats, but the weather and the constant threat of being swept overboard – or being hit by furniture flying across the cabins! The *Toronto City's* first voyage out of St John's was especially fraught. On the 17th January, as the ship was approaching the patrol area and the temperature was minus 1C, the wind increased from force 9-10 to Force 12 (Figure 17). The outcome, as described by Proud, was predictable:

All our pipes froze up and several burst, and the consequence has been a return to the extremely primitive matter of what are optimistically known as WCs.

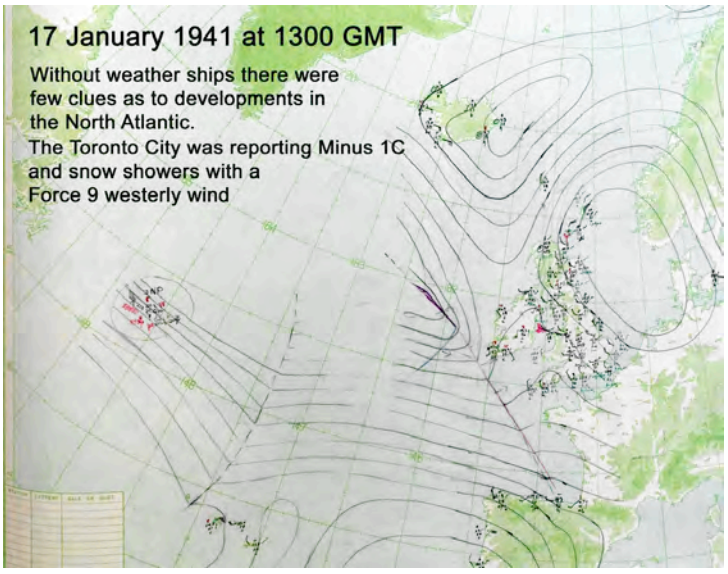


Figure 17. The 1300 GMT chart on the 17th January 1941, showing just how vital were the Panther observations on an otherwise blank chart. At the time the charts only extended as far west at Newfoundland and Labrador, and observations from Greenland were irregular. At 1830 GMT the wind reached 66 knots. (*© Meteorological Office)*

More was to follow; on the 10th February, when the *Toronto City* was returning to St John's, and 150 miles from port, a vigorous cold front swept east out of Labrador. A south-westerly wind of 30 knots veered to north-westerly 50 knots, and as the temperature plummeted from minus 1C to minus 10C, the ship became covered in ice as spray whipped up by the storm force winds froze on the decks and superstructure.

Even after docking from this trip the crew had little opportunity to recover. With the exception of Proud who had a great deal of administration to deal with, the *Toronto City*, with Hedley-Smith still aboard, headed back to sea to help a vessel in distress.

Meanwhile Portass was having his own problems, but these were personal rather than weather related. Of particular concern was the fact that:

'The Captain insisted on showing lights every night whilst on patrol, giving as his reason the danger of collision. The danger of a torpedo worries the Mates and myself far more.

He was also unimpressed with the cooking arrangements:

Conditions in the galley are still very bad – dirty plates, dirty food and dirty manners.

Even worse in some respects was that the Captain insisted small luxuries such as cigarettes and beer were sold at shore rates instead of discounted prices as was normally the case.

All the men suffered from irregular deliveries of mail and a lack of news from home. During the time Proud was based in Newfoundland he received just seven letters from his wife, and none at all between 18 February and 6 May.

Despite constant requests for a definite date for the ships' return, none was forthcoming even though their crews fully expected to return to England at the expiration of their contracts in March. Their hopes were cruelly dashed when the Admiralty stated at the end of March, that the ships would remain at St John's indefinitely. The reasons given were that not only was it too dangerous to return, but the absence of the ships would result in an unacceptable loss of reports.

Little wonder a depressed Proud was moved to write:

The trouble with this job, as indeed was always the case, is the sheer boredom of it. The resemblance to a prison sentence is striking, with the subtle difference that the term of the sentence is unknown and that this jail is not as stable as the more orthodox type. In jail too, I believe, a visit from one's wife is allowed every month or so.

Even so, Portass and Proud were more fortunate than their junior colleagues. While the two officers were able to break the routine by legitimately visiting Newfoundland Airport, the two Corporals were restricted to the ships, and even these were moored in mid-channel except when loading stores (Figure 18).

Figure 18. In St John's, probably during April 1941; Dick Wrighton (in white shirt) with some of the Arakaka's officers; from the left – Ronald Whale (Radio Operator), Alexander Jack (Third Officer), Unknown. (© Lesli Gallivan).

Besides which everything in Newfoundland was expensive compared with the UK and the Corporals' limited pay did not allow them to stay ashore.

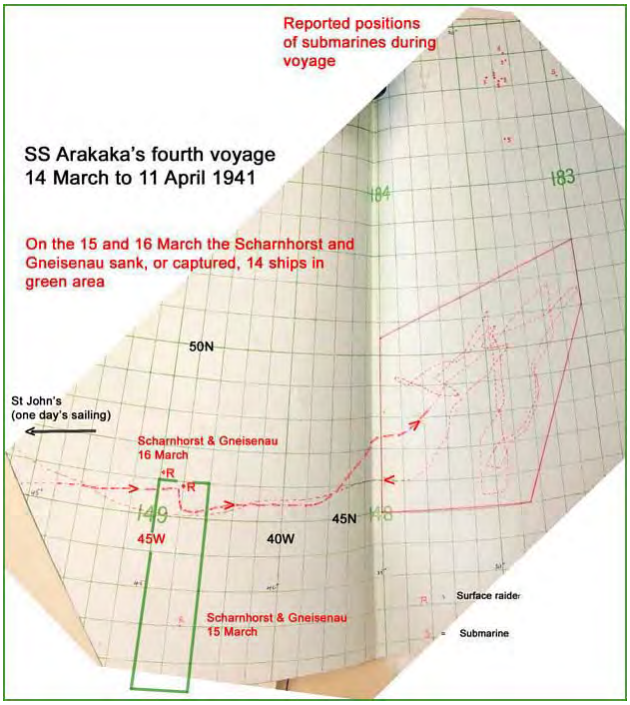
At the time St John's harbour was open to the public and, with no security, visitors were free to come and go as they pleased – which caused Portass some consternation when an American was discovered nosing around the *Arakaka* during April. A rumour quickly spread around St John's that the two ships were Q-boats and carried four planes.

Proud found the town itself had little to recommend, and writing to his wife, told her:

At first sight, especially in winter, it appears a depressing place and even on closer acquaintance it proves to have few places of entertainment and fewer of an attractive kind. But the people are the most hospitable I have ever met (Figure 19).

Figure 19. St John's harbour, Newfoundland; painted by Tom Wood in 1945. CWM 19710261-4875; Beaverbrook Collection of War Art. (© Canadian War Museum)

The *Toronto City* should have left St John's for its fourth voyage on the 19th February, but a consignment of Welsh coal, the preferred fuel as it produced little smoke, failed to arrive. As a result the ship eventually sailed on the 1st March loaded with ordinary house coal. The voyage was one of high tension as the coal produced excessive amounts of smoke, and emitted a fiery glow at night.



Fortunately the crew's fears were unfounded as U-boat operations had yet to extend into the patrol area. But submarines were not the only threat. During the late afternoon of the 16 March, as the *Arakaka* was sailing to relieve the *Toronto City* from its smoky patrol, a Danish ship just 15 miles to the north signalled that it was being attacked by a German battleship. The *Arakaka* quickly changed course, and enjoyed an otherwise uneventful voyage (Figure 20).

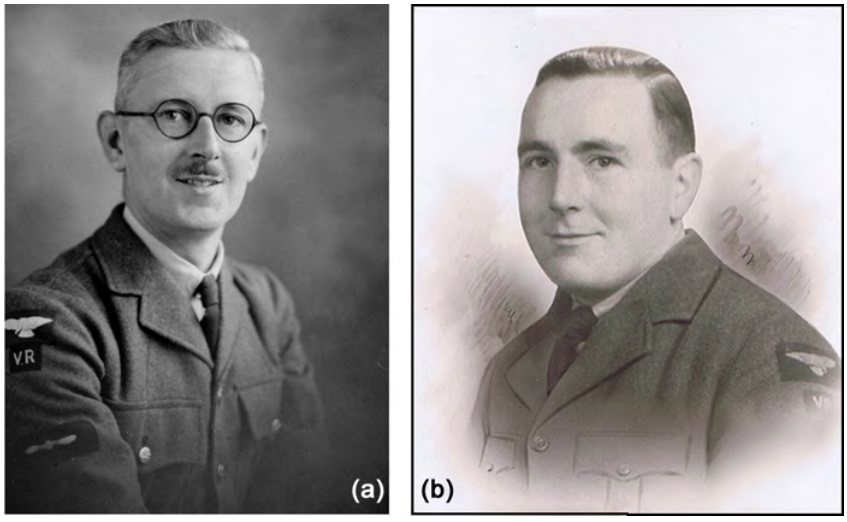
The battleship was the *Gneisenau* which, accompanied by the *Scharnhors*t, sank 14 ships in 24 hours between the 15th and 16th (Figure 21).

Figure 20. The track of the SS Arakaka during its fourth voyage; the Gneisenau and Scharnhorst sank, or captured 14 ships in the green rectangle on the 15-16th March. Intelligence reports placed U-boat activity far to the north of the patrol area.

Figure 21. The German battleships Gneisenau and Scharnhorst; the SS Arakaka passed within 15 miles of the two vessels on 16 March 1941.

In anticipation of radio-sonde operations Portass and Proud had several times requested an additional assistant for their ships, and at the beginning of May they were notified two airmen had been posted to St John's.

They arrived in late May having travelled together. Leading Aircraftman (LAC) Percy Short (Figure 22a) joined the *Arakaka*; married with a five-year old daughter, at 33 he was by far the oldest of the meteorologists to serve on the Panthers.



Short's travelling companion, LAC Forbes Thom (Figure 22b), had been married exactly three months when he joined the *Toronto City* on the 4th June.

Figure 22. (a) LAC Percy William Henry Short of the SS Arakaka (© Margaret Goodall) and (b) LAC Forbes Vivian Thom of the SS Toronto City (© Margaret Vincent).

Their arrival coincided with a change of U-boat tactics in the North Atlantic – whereas previously they had mostly patrolled along the main convoy routes between the UK and Canada, or West Africa, with concentrations just in the Northwest Approaches, during early June they moved west and began operating off Canada and Newfoundland.

After the *Arakaka* left St John's on the 2nd June, reports of increasing U-boat activity in the Halifax naval broadcasts would have alerted its crew to the be extra vigilant.

On the 20th June, the last day of its patrol, the *Arakaka* set course for St John's (Figure 23a). During the afternoon of the 22nd speed was reduced as the ship entered an area of fog which was often found at about 41ºW, little realising that a U-boat, U-77, was dead ahead and edging slowly east on a reciprocal course (Figure 23b).

The U-boat remained unaware of the steamer's proximity until the fog thinned briefly at 2034 GMT. Closing to about 500 m U-77 (Figure 24) stalked the ship for an hour before firing a single torpedo. Hit in the engine-room the *Arakaka*, with most of its 40 crew, sank within a minute, leaving a small number of oil-covered survivors clinging to an up-turned lifeboat.

Before the survivors were finally abandoned they told the U-77's captain that the ship was the Greek steamer, the *Alexandria.*

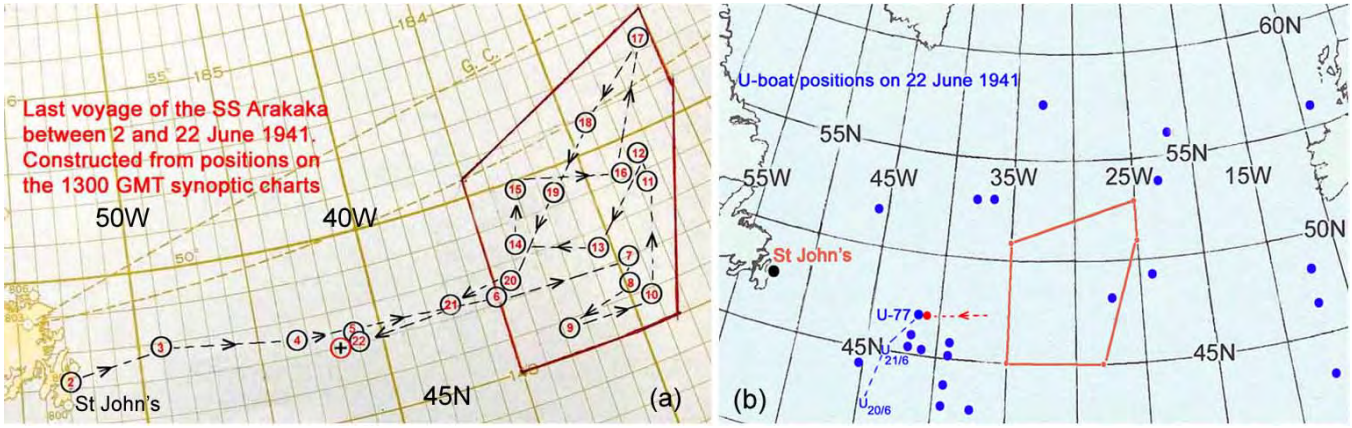


Figure 23. (a) The 1300 GMT positions of the SS Arakaka during its last voyage, from its departure from St John's on 2 June. (b) The positions of U-boats at approximately 1100 GMT on 22 June, and the track of U-77 (blue dashes). During the afternoon U-77 had turned eastward into the path of the Arakaka (red dashes). (© B J Booth)

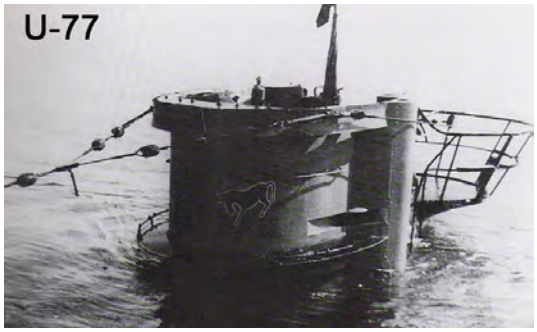
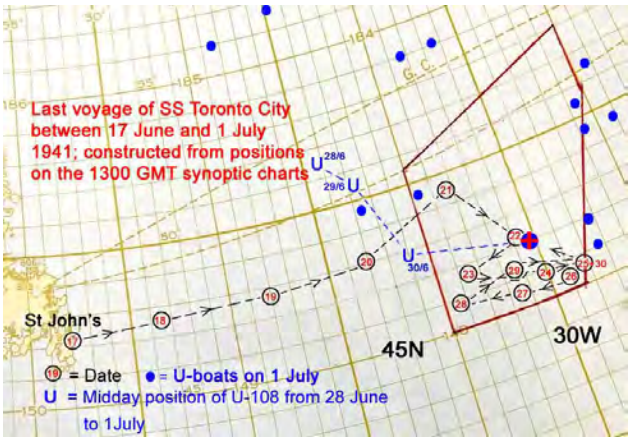
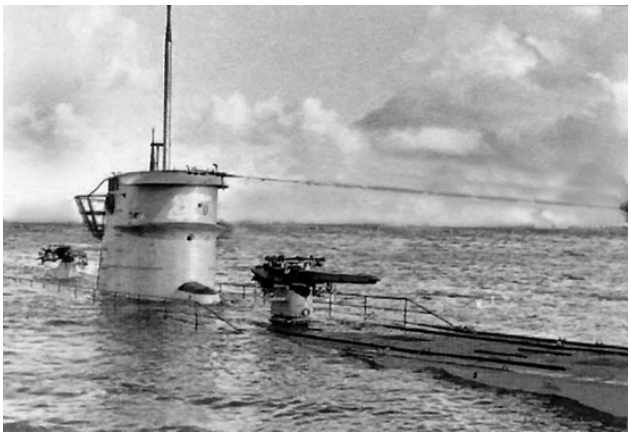


Figure 24. The U-77's conning tower, with its 'Wild Onager' emblem.



The crew of the SS *Toronto City* were well aware of the increased U-boat activity when they left port for their seventh voyage on the 17th June, and it was this that restricted the ship to the extreme south of the patrol area (Figure 25).

Figure 25. U-boats passing through the patrol area during June restricted the SS Toronto City's operations to the south. Bar the U-108 all the U-boats had left the area by 1 July. (© B J Booth)



Most U-boats had left the area by the 1st July, with the exception of U-108 (Figure 26), en route to its base at Lorient on the Brittany coast. At 1413 GMT, in fine weather - 10-12 miles visibility and a Force 3-4 west-northwest wind – the U-boat sighted the steamer sailing on a reciprocal course.

Figure 26. The U-108

Just three hours later the U-108 fired a single torpedo, hitting the ship in the bow. At 1731 GMT, three minutes after being hit, the *SS Toronto City* disappeared beneath the waves leaving 23 of its 43 crew clinging to rafts and wreckage.

After being questioned by U-108 they too were left to their fate.

There is much, much, more that could be told about the whole Panther operation, not the least being that no-one in the Met Office or Admiralty appears to have seen fit to acknowledge the value of the work being done. Indeed, before sailing from St John's on what was to be his last voyage Portass was moved to ask:

Have the patrols been satisfactory?

For me one of the saddest aspects of the Panther operation was that the junior meteorologists had no say in the decisions that took them to Newfoundland. They were simply ordered to the ships, and even in death the value of their contributions went unrecognised.

Proud's last report, dated 16 June, referred to a letter from Wing Commander Britton which advised that Wrighton and Hedley-Smith would be promoted to Sergeants when Short and Thom reached St John's, and new arrivals would be promoted to Corporals. Proud and Portass separately signalled Britton of the two men's safe arrival and Proud also confirmed his signal by separate telegram. Despite this none of the promotions were ever acted upon; so their families were denied even this small comfort.

Those who served on the Panthers were fully aware of the dangers, and I will end the story with an extract from a letter that Dick Wrighton wrote to his fiancée, Kathleen, during his Christmas leave in December 1940:

My Darling,

I am writing this because I know I shall not return from this trip. You will not receive this until that has been established but for the last time I want to tell you – I love you, and to thank you as no words can convey for all you have meant to me.

If you love me then there is just one thing I ask. Please forget me. …….

For ever yours

Dick

(© Lesli Gallivan)

Brave men - all of them – and *none* were forgotten.

Acknowledgements

I acknowledge my great debt to the families of the meteorologists who served on the *SS Arakaka* and *SS Toronto* City, for their kindness and generosity in allowing me access to family letters and photographs.

Elizabeth Proud, daughter of Stanley Proud
Margaret Goodall, daughter of Percy Short
Lesley Millard, niece of Sydney Portass
Lesli Gallivan, daughter of Richard Wrighton's fiancée who married after the war.
Margaret Vincent, niece of Forbes Thom

Also Frances Holmes, granddaughter of Captain Walker of the *SS Arakaka*.

Edwin Hedley-Smith was unmarried; his three sisters appear to have died childless and I have been unable to trace any relatives.

Sources

National Archives files:

ADM 1/11151 Presumed loss of meteorological reporting ships with RAF meteorological personnel aboard
AIR 2/4793 North Atlantic weather ships
BJ 5/72 Floating meteorological station (1939-1941)
BJ 5/73 Floating meteorological station (1941-1945)

Other

The Kriegstagebuch (Log Book) of U-77 and U-108.

Uboat.net An Internet forum providing comprehensive details of U-boat activities during the Second World War

Figures 5, 6, 12, 14b, 16 and 20 based on National Archives files BJ 5/72 and BJ 5/73
Figures 23 and 25 are based on ship positions extracted from 1300 GMT Meteorological Office charts, and U-boat positions found on Uboat.net.